

EXCAVATION PLAN FOR AREA 1, PHASE IV

**FERNALD CLOSURE PROJECT
FERNALD, OHIO**



DECEMBER 2003

U.S. DEPARTMENT OF ENERGY

**20730-PL-0001
REVISION 0
FINAL**

000001

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LIST OF ACRONYMS AND ABBREVIATIONS

D&D	Decontamination and Decommission
DOE	U.S. Department of Energy
FCP	Fernald Closure Project
FRL	Final Remediation Level
NPDES	National Pollutant Discharge Elimination System
OSDF	On-Site Disposal Facility
WAC	Waste Acceptance Criteria

EXCAVATION PLAN FOR AREA 1, PHASE IV**1.0 INTRODUCTION****1.1 Background**

The On-Site Disposal Facility (OSDF) is being constructed to contain impacted materials obtained from remediation of the operable units at the Fernald Closure Project (FCP) and is located on the eastern portion of the site. When completed, the OSDF will consist of eight cells being constructed and filled generally from north to south. The major components of each cell include a liner and final cover system, leachate management system, surface-water management system, and support facilities and the utilities. Prior to the placement of waste within an individual cell the subgrade must be prepared and the liner system and portions of the leachate management system must be completed. Prior to constructing the liner and portions of the leachate management system, the subgrade must be readied. This includes removal of topsoil, other unsuitable soils, and at- and below-grade structures. In addition, the area must be certified to meet the established final remediation level (FRL) goals based on the Operable Unit 5 Record of Decision (DOE 1996).

A portion of the footprint for OSDF Cell 8 that will be constructed in the future has not been certified. This excavation plan addresses the activities that must be completed to facilitate the construction of the OSDF Cell 8 footprint. Prior to subgrade preparation of the OSDF Cell 8 footprint, the area will be sampled for certification and will be certified with the agency approval of the area-specific certification report.

1.2 Purpose

This excavation plan describes the remediation of soil, and at- and below-grade structures within an uncertified portion of the OSDF Cell 8 footprint. This area is included in Area 1, Phase IV. The majority of the OSDF Cell 8 footprint as already been certified as part of Area 1, Phase II (see Figure 1). Note: As of the date of this publication, Cell 8 has not been designed and the footprint required to construct the cell liner and cap has been approximated for purposes of this document.

1.3 Exclusions

The removal of above-grade structures at the Fuel Loading/Unloading Facility (82B) located within the Area 1, Phase IV is excluded from this document. The removal of these structures will be performed as a Decontamination and Decommission (D&D) activity [see Miscellaneous Small Structures Phase II Implementation Plan for Above-Grade D&D (DOE 2003)]. In addition, the purging for fuel from the

1 associated underground diesel and gasoline fuel lines is excluded from this document and will be
2 conducted as a facility isolation operation.

3
4 The predesign characterization of the Area 1, Phase IV is also excluded from this document (see Project
5 Specific Plan for Predesign Investigation in Area 5 (DOE 2002). This area was reclassified from part of
6 Area 5 to Area 1, Phase IV based on verbal requests from both the U.S. Environmental Protection Agency
7 and Ohio Environmental Protection Agency.

8
9 The removal of structures within the OSDF Cell 8 footprint that are in already certified areas (Area 1,
10 Phase II) will not be governed by this document and will be removed as part of the OSDF Cell 8 subgrade
11 preparation effort.

12 13 2.0 REMEDIAL APPROACH

14 2.1 Description

15 The Area 1, Phase IV is located east of the Administration Area and east of the southeast corner of the
16 Former Production Area (see Figure 1). The area functions as a radiologically clean area (not
17 radiologically controlled) and has served primary as a support area for site operations. Provided in
18 Appendix B, Table B-1 provides a summary of analytical data from borings sampled within the Area 1,
19 Phase IV boundary and Figure B-1 shows the boring locations.

20
21 The area has primarily been used to park inbound and outbound tractor trailers used to ship waste
22 materials off-site for disposal at the Nevada Test Site. This includes several concrete pads and gravel
23 parking lots to facilitate trailer parking. In addition, several auxiliary gravel parking lots to facilitate
24 worker parking have been constructed within the area.

25
26 The area also includes the Fuel Loading/Unloading Facility (82B). This contains two above-ground fuel
27 tanks (one for diesel and one for gasoline that service two sets of pumps). One set of pumps is located on
28 the western side of Facility 82B. The other set of pumps is located within the Former Production Area
29 near the Elevated Potable Water Tank (20D) and service site vehicles within the radiologically controlled
30 areas. These tanks and the two adjacent pumps will be removed by D&D prior to the beginning of
31 excavation. As these tanks contained fuel, efforts will be made to prevent characteristic hazardous waste
32 or materials that are deleterious to the geomembrane liners in the OSDF from being placed in the OSDF.

1 A number of underground utilities are located within the Area 1, Phase IV. This includes portions of
2 electrical duct banks, direct buried electrical cables, communication cables, potable water lines, a fuel gas
3 (natural gas) line, an effluent line, a sanitary force main line and the original OSDF Leachate Conveyance
4 System gravity pipe. In addition, there are underground diesel and gasoline lines running west from
5 Facility 82B to the controlled area pumping station. This area also has a number of overhead electrical
6 power lines including three lines from a Cinergy Gas and Electric transmission tower to the site's Main
7 Electrical Station (16A).

8 9 2.2 Stormwater Management

10 Stormwater from Area 1, Phase IV drains indirectly to Paddys Run through surrounding ditches and the
11 OSDF Sediment Basin #2 (see Figure 2). Likewise during excavation, storm water will drain indirectly to
12 Paddys Run through surrounding ditches and the OSDF Sediment Basin #2; however, check dams will be
13 installed at strategic locations to reduce the amount of sediment loading in the discharge. Specifically,
14 check dams will be installed at the inlets of two culverts that are to remain in place after excavation, and
15 at the outlet of a third culvert that will be removed during the remediation process.

16
17 Three culverts drain storm water from the work area. Two of these culverts are located on the west side
18 of the work area and drain under "F" Street to the OSDF Sediment Basin #2 Main Drainage Channel.
19 These two culverts are to remain in service after remediation of the area and will not be removed until
20 "F" Street is remediated, which is not covered by this document. The removal of these culverts will be
21 addressed in the Implementation Plan for Area 7, Phase III. Check dams will be installed at the inlets to
22 these two culverts. The other culvert that drains storm water from the work area is located near the Fuel
23 Loading/Unloading Facility and drains northward into a stone lined ditch that discharges into the OSDF
24 Sediment Basin #2 Main Drainage Channel. This culvert will be removed during remediation of the work
25 area. A check dam will be installed at the outlet of this culvert.

26
27 Water collected in the OSDF Sediment Basin #2 Main Drainage Channel drains into the OSDF Sediment
28 Basin #2 prior to being released to Paddys Run. Discharge from this basin spills into a riser pipe, flows
29 through a large storm pipe located under the southeast parking lot, drains into the Storm Sewer Outfall
30 Ditch, and is released into Paddys Run at Permitted National Pollutant Discharge Elimination System
31 (NPDES) Stormwater Outfall (STRM 4003) under Ohio NPDES Permit 1IO00004*FD.

2.3 Remedial Excavation

Prior to excavation, the utilities within the work area will be isolated, and check dams and construction safety fences will be installed as per the drawings (see Appendix A).

Excavation equipment will be used to break at-grade concrete pads and asphalt pavement within the work area. Broken concrete, asphalt, and surface gravel will be removed from the work area for disposal in the OSDF. Real-time monitoring will be performed on soil immediately under removed pads, pavement, and surface gravel to ensure that no material above the waste acceptance criteria (WAC) material for the OSDF exists on the underlying surface of the soil prior to continued excavation. Disturbance to the soil under pads, pavement, and gravel will be minimized until the underlying surface can be monitored.

Underground utilities and below-grade structures within the work area will be removed. This includes the last remaining portion of the abandoned-in-place Leachate Conveyance System Gravity Flow Pipe which is located almost entirely within the area to be certified but includes almost 60 feet of pipe that runs just outside and southwest of the work area. In addition, an approximately 30-foot portion of the underground diesel and gasoline fuel lines will also be removed that are located within the Area 1, Phase II Certification Area. One potable water line and yard hydrant located within the excavation area will be protected during excavation and left in place. This line and hydrant are actually outside the Cell 8 liner footprint and will be used to support construction of Cell 8 as needed. This line will be removed when it becomes isolated due to soil remediation in other areas that would take the line out of service.

Initially, characterization of the concrete will be determined by the associated predesign data. Secondary evaluation will be based upon Waste Acceptance Organization personnel observations that the debris is visually clean. If predesign data has not been obtained for the subject area, the material will be temporarily staged and disposition will be determined by real-time monitoring results of the underlying soil surface and visual observation. After the removal of surface concrete, asphalt, and gravel, a 6-inch surface scrape will be performed over the work area to ensure removal of contaminated material otherwise not discovered during predesign characterization. All excavated material, soil and debris meeting the OSDF WAC will be disposed in the OSDF. Any above-WAC material including ignitable materials or materials that are deleterious to the liners of the OSDF will not be placed in the OSDF. These materials will be segregated for treatment or disposed of accordingly.

1 2.4 Interim Restoration

2 A precertification Project Specific Plan will be submitted as a separate document to the regulatory
3 agencies for review and approval. Precertification activities will commence after the design grade has
4 been reached and all other remediation in the area is complete. The precertification area will be
5 delineated and controlled to prevent cross-contamination of environmental media. Real-time monitoring
6 of the excavated grade will be performed to precertify the area as attaining the uranium, thorium, and
7 radium FRL goals. The remediated area will be seeded in accordance with Technical Specification
8 Section 02930.

9
10 After certification of the area is obtained, the construction of the OSDF Cell 8 liner and Valve House #8
11 can begin as scheduled.

12
13 References

14 U.S. Department of Energy, 1996, "Record of Decision for Remedial Actions at Operable Unit 5," Final,
15 Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

16
17 U.S. Department of Energy, 2002, "Project Specific Plan for Predesign Investigation of Area 5,"
18 Revision 0, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

19
20 U.S. Department of Energy, 2003, "Miscellaneous Small Structures Phase II Implementation Plan for
21 Above-Grade Decontamination and Dismantlement," Revision 0 PCN 1, Fernald Closure Project, DOE,
22 Fernald Area Office, Cincinnati, Ohio.

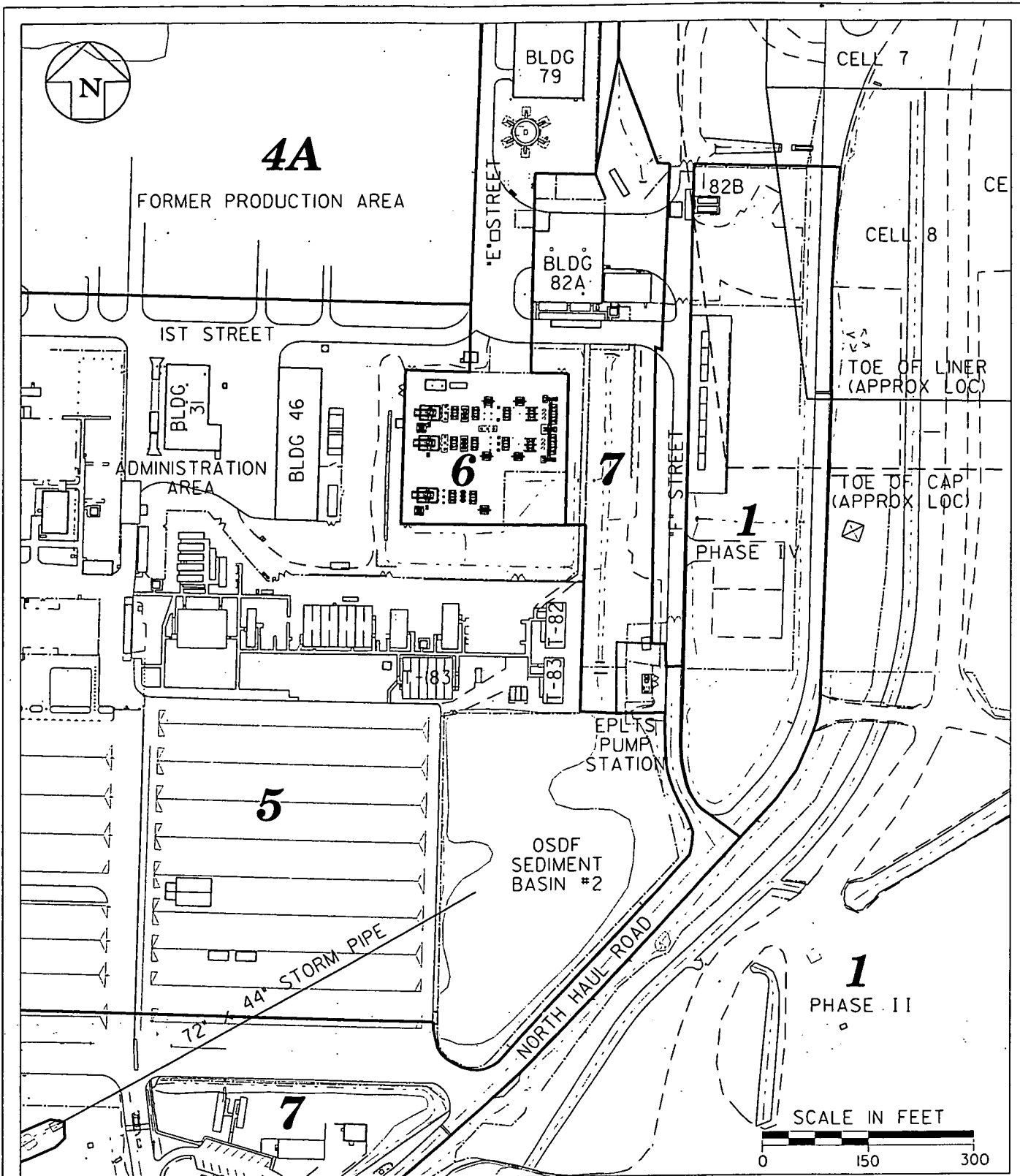
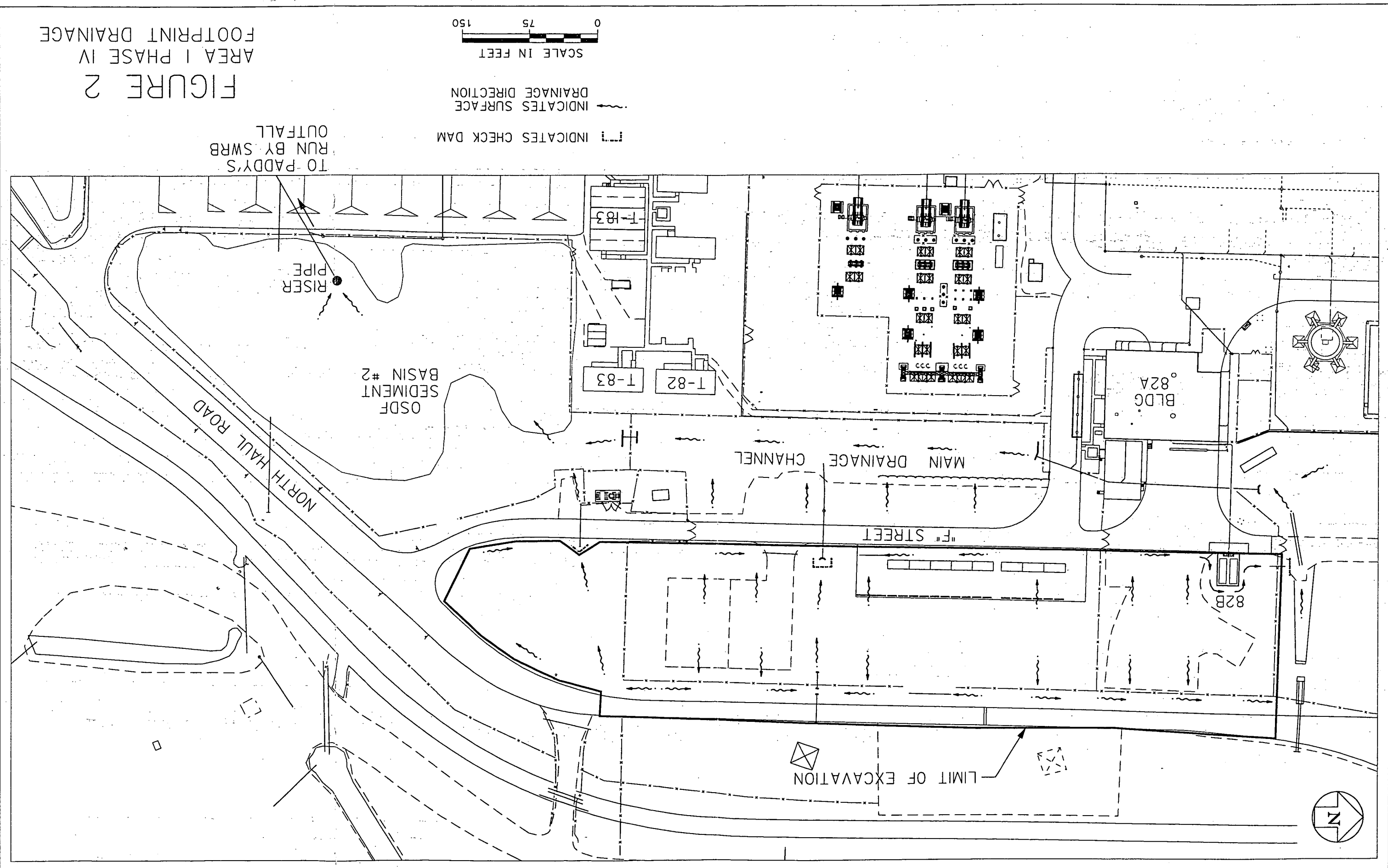
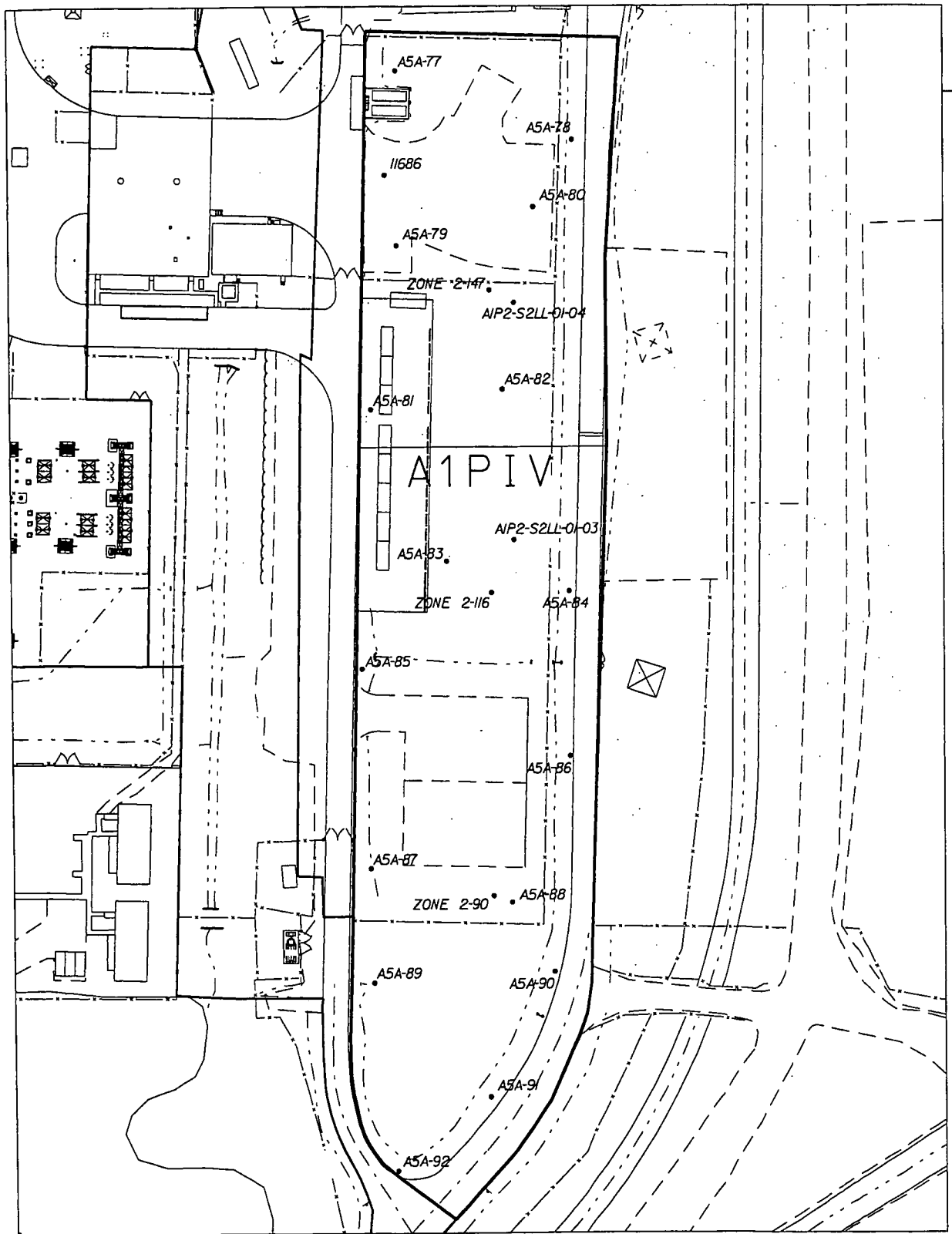


FIGURE I
AREA I PHASE IV
FOOTPRINT





LEGEND:

• BORING LOCATIONS

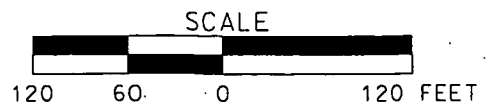


FIGURE B-1. HISTORICAL BORING LOCATIONS IN A1PIV

APPENDIX A

LIST OF DRAWINGS

**APPENDIX A
LIST OF DRAWINGS**Design Drawings

Drawing 99X-5500-G-00780 Area 1, Phase IV Cell 8 Partial Excavation Plan, Sheet 1 of 2

Drawing 99X-5500-G-00781 Area 1, Phase IV Cell 8 Partial Excavation Plan, Sheet 2 of 2

Reference Drawings

Drawing 99X-5500-X-00639 Legend and General Notes

Drawing 99X-5500-G-00769 Utility and Structure Removal Below Design Grade

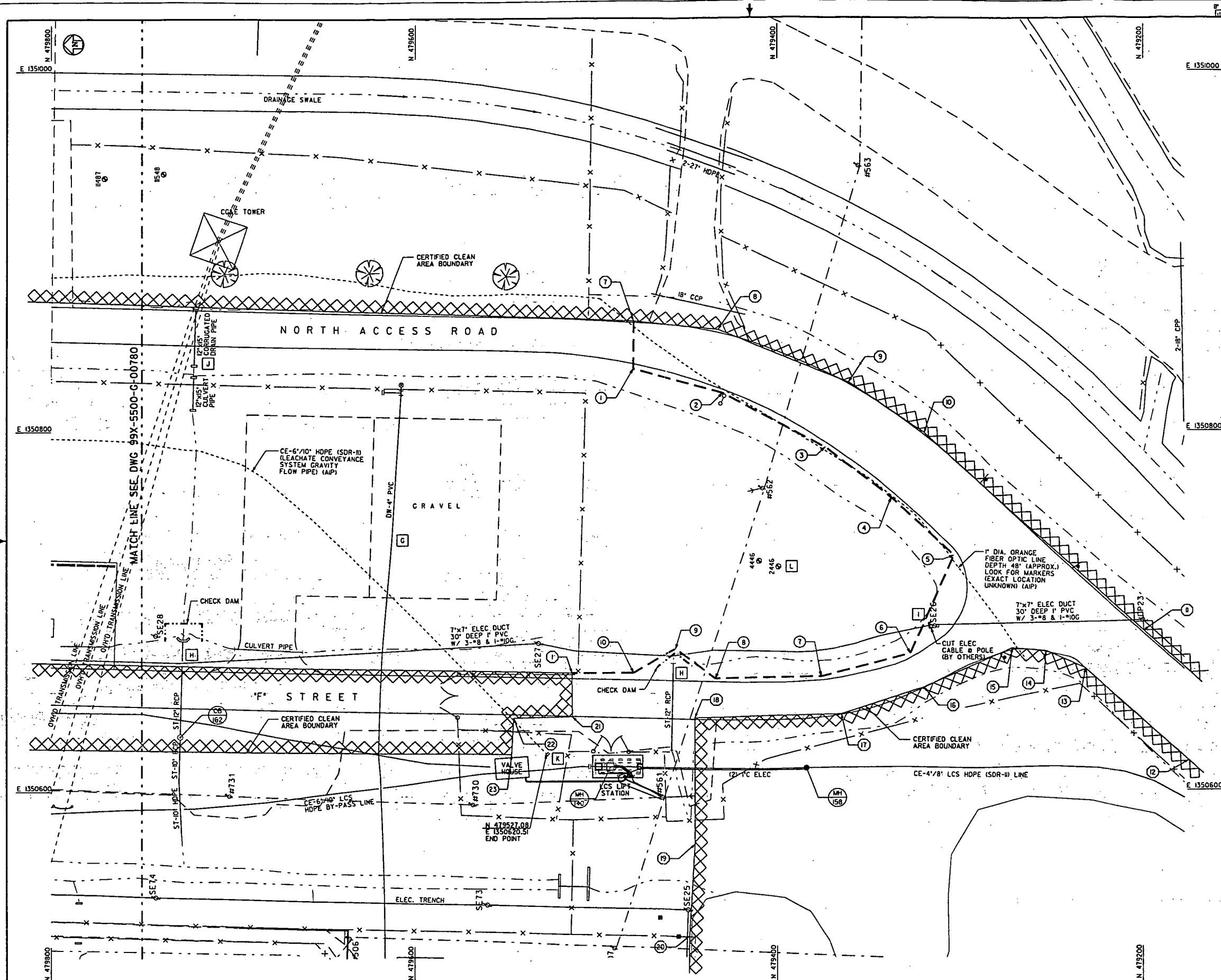
Drawing 22F-5500-P-00663 Grid 4 Underground Utilities – Bldg. 79, 82 and E. Water Tower

Drawing 22A-5500-P-00664 Grid 5 Underground Utilities – East of Main Substation

A horizontal scale bar with alternating black and white segments. Numerical markings are placed above the bar at 0, 10, 20, 50, and 100. Below the bar, the text "SCALE IN FEET" is centered.

AREA 1 PHASE IV
CELL 8 PARTIAL EXCAVATION PLAN
SHEET 1 OF 2

PROJECT 20130	99X-5500-G-00780	0.
DATE 5/2/03		
DRAWN BY LOGGREN		



GENERAL NOTES

- SEE DRAWING 99X-5500-G-00780 FOR GENERAL NOTES AND SCOPE OF REMEDIATION WORK.
- SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND ADDITIONAL GENERAL NOTES.

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KEYED NOTES

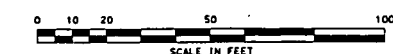
- G** PROTECT BELOW GRADE 4 INCH POTABLE WATER LINE (DW-4"). TO REMAIN IN SERVICE
- H** PROTECT 12 INCH STORM SEWER LINES (ST-12" RCP). TO REMAIN IN SERVICE
- I** PRIOR TO EXCAVATION, VERIFY UNDERGROUND ELECTRIC CABLE WEST OF POLE SE26 HAS BEEN ELECTRICALLY ISOLATED BY OTHERS.
- J** ESTABLISH DRAINAGE DITCH AFTER REMOVING CULVERT AND CORRUGATED DRAIN PIPES
- K** REMOVE THE ABANDONED IN PLACE LEACHATE CONVEYANCE SYSTEM GRAVITY FLOW PIPE (AIP) ACROSS THE CERTIFIED AREA TO THE END POINT. BACKFILL ACROSS "F" STREET WITH ODOT ITEM 304 AGGREGATE.
- L** PROTECT MONITORING WELLS AND SURROUNDING CONCRETE PADS (TO BE REMOVED BY OTHERS).

EXCAVATION CONTROL POINTS		
PT NO.	NORTHING	EASTING
1	479479.40	1350834.62
2	479430.03	1350821.06
3	479373.63	1350790.77
4	479338.14	1350762.74
5	479303.79	1350730.65
6	479327.75	1350675.95
7	479375.66	1350663.30
8	479434.20	1350662.17
9	479456.35	1350678.67
10	479479.25	1350665.45

CERTIFIED CLEAN AREA CONTROL POINTS		
PT NO.	NORTHING	EASTING
1	479512.95	1350665.45
2	479479.25	1350861.16
3	479432.68	1350856.30
4	479360.97	1350826.87
5	479320.16	1350798.81
6	479399.46	1350688.80
7	479174.80	1350616.59
8	479231.74	1350667.97
9	479253.50	1350677.58
10	479271.74	1350678.99
11	479320.34	1350657.31
12	479364.89	1350642.54
13	479445.60	1350640.30
14	479445.60	1350570.30
15	479448.61	1350593.55
16	479512.76	1350641.22
17	479545.61	1350640.30
18	479546.78	1350620.15

FOR INFORMATION ONLY

000013



REVISIONS		DATE		BY		APPD.		NO.	
1	ISSUED CERTIFIED FOR CONSTRUCTION	07/01	RML	GEP					
2									
3									
4									
5									
6									
7									
8									
9									
10									

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION DRAWING

CONSULTANT ENGINEER DATE

APPROVALS

CIVIL & STR.	AC. CHECK	07/01	SAFETY ENG.	C. JONES	07/01
ELECTRICAL	ENGINEER	07/01	WASTE MGR.		
INSTRUMENT	MECHANICAL		SECURITY		
CHECKED	C. JONES	07/01	CONSTRUCTION		
APPROVED	C. JONES	07/01			

Fernald Closure Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

AREA 1 PHASE IV

CELL 8 PARTIAL EXCAVATION PLAN

SHEET 2 OF 2

PROJECT 20730

DATE 5/2/03

DESIGNER R. L. BROWN

99X-5500-G-00781 0

GENERAL NOTES

- EXISTING TOPOGRAPHY SHOWN ON DRAWINGS PROVIDED BY FLUOR FERNALD. THESE SOURCES INCLUDE EXISTING SITE DATA SOURCE (ON-PLANT FILES) FCP CADD GRID/UTILITY DRAWINGS.
- HORIZONTAL CONTROL SHOWN ON THE DRAWINGS IS BASED UPON NORTH AMERICAN DATUM 1983 (NAD 83).
- VERTICAL CONTROL SHOWN ON THE DRAWINGS IS BASED UPON NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD 29).
- SILT FENCES SHALL BE INSTALLED AND FUNCTIONAL PRIOR TO UPGRADIENT LAND DISTURBANCES IN ACCORDANCE WITH THE SPECIFICATION REQUIREMENTS.
- DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY ENGINEER.
- GEOLOGICAL AND CROSS SECTION INFORMATION TAKEN FROM (FEMP) OU-2 RI, 1995, OU-2 FS, 1995, GEOTECHNICAL REPORTS, AND FEMP 3D CADD MODEL. ACTUAL GEOLOGICAL CONDITIONS AND DEPTHS SHOWN ON CROSS SECTIONS MAY VARY AND SHALL BE DETERMINED IN THE FIELD DURING EXCAVATION.
- LOCATION AND DEPTH OF EXISTING UTILITIES AND FOUNDATION STRUCTURES ARE APPROXIMATE. IF UNIDENTIFIED UTILITIES ARE DISCOVERED, PROCEED AS DIRECTED BY THE CONSTRUCTION MANAGER.
- DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
- FIGURED DIMENSIONS AND/OR ELEVATIONS MARKED THUS (+/-) SHALL BE VERIFIED IN THE FIELD BEFORE START OF REMEDIATION.
- MAINTAIN AND PROTECT UTILITIES OUTSIDE THE LIMIT OF EXCAVATION AND/OR LIMIT OF WORK.
- PROVIDE TEMPORARY SHORING, BRACING, OR OTHER METHODS AS NECESSARY TO SAFELY SUPPORT EXCAVATION. PROTECTION SHALL BE IN ACCORDANCE WITH OSHA 29 CFR 1926, SUBPART P-EXCAVATIONS, LATEST EDITION.
- OUTSIDE THE BOUNDARIES OF A COMPLETED UTILITY ISOLATION TRENCHED AREA, A PENETRATION PERMIT MUST BE OBTAINED BY THE CONSTRUCTION MANAGER FOR EXCAVATION OR PENETRATION INTO THE SOIL DEEPER THAN 6 INCHES.
- TECHNICAL SPECIFICATIONS GOVERNING THIS PROJECT ARE THE LATEST REVISIONS OF 38/48/5 TECHNICAL SPECIFICATIONS (DOCUMENT NO. 20000-TS-0001 AND 2080-TS-0001) AND ON-SITE DISPOSAL FACILITY (OSDF) PHASE IV TECHNICAL SPECIFICATIONS (DOCUMENT NO. 2004-TS-0001).
- UNDERGROUND UTILITY GRIDS AND UTILITY DESIGNATION ABBREVIATIONS ARE IN ACCORDANCE WITH THE FEMP MASTER GRID OF UNDERGROUND UTILITY PLANS DRAWING 22X-5500-P-00659.

CONSTRUCTION DRAWING ABBREVIATIONS

ACM	ASBESTOS CONTAINING MATERIAL
AIP	ABANDONED IN PLACE
AW	ACID WASTE WATER LINE
BR	BRINE LINES
BSL	BIOIDENTIFICATION SURGE LAGOON
CB	CATCH BASIN
CE	CONTAMINATED EFFLUENT LINE
CFM	CUBIC FEET PER MINUTE
COC	CONSTITUENTS OF CONCERN
CN	STEAM CONDENSATE LINE
CO	CLEAN OUT
DF	DEIONIZED FEED LINE
DW	LOW PRESSURE FIRE / POTABLE WATER LINE
EC	EDGE OF CONCRETE
EMH	ELECTRICAL MANHOLE
EP	EDGE OF PAVEMENT
EPLTS	ENHANCED PERMANENT LEACHATE TRANSMISSION SYSTEM
EL	ELECTRICAL LINE
ELEV	ELEVATION
FCP	FERNALD CLOSURE PROJECT
FG	FUEL GAS LINE
FRL	FINAL REMEDIATION LEVEL
FT	FILTRATE OR EFFLUENT LINE
FTF	FIRE TRAINING FACILITY
FOI	HIGH PRESSURE FIRE LINE
GMA	UNSATURATED SANDS AND GRAVELS OF THE GREAT MIAMI AQUIFER
GW	GROUND WATER LINE
HWMU	HAZARDOUS WASTE MANAGEMENT UNIT
IE	INVERT ELEVATION
KV	KILOVOLT
LF	LINEAR FEET
LS	LIVE STEAM
LSP	LIME SLUDGE POND
MDC	MAIN DRAINAGE CORRIDORS
MH	MANHOLE
NAR	NITRIC ACID RECOVERY
OC	ON CENTER
OD	OUTSIDE DIAMETER
OMTA	OSDF MATERIAL TRANSFER AREA
OSDF	ON-SITE DISPOSAL FACILITY
PA	PLANT AIR LINE
PCE	TETRACHLOROETHENE
PIV	POST INDICATOR VALVE
RAD	RADIUS
RCRA	RESOURCE CONSERVATION AND RECOVERY ACT
RW	RAW WATER LINE
SA	INSTRUMENT AIR SUPPLY LINE
SD	SUB-SURFACE DRAINAGE LINE
SL	SUMP LIQUOR LINE
SMH	SANITARY MANHOLE
SMTA	SPECIAL MATERIAL TRANSFER AREA
SN	SANITARY SEWER LINE
SP	STOCKPILE / SOIL PILE
ST	STORM SEWER LINE
SWL	SOLID WASTE LANDFILL
SWRB	STORMWATER RETENTION BASIN
TC-99	TECHNETIUM-99
TOG	TOP OF GRATING
TOP	TOP OF PIPE
TYP	TYPICAL
TW	TREATED WATER LINE
UST	UNDERGROUND STORAGE TANK
VOC	VOLATILE ORGANIC COMPOUND(S)
WAC	WASTE ACCEPTANCE CRITERIA
WR	WATER RETURN-COOLING LINE
WS	WATER SUPPLY-COOLING LINE
WWF	WELDED WIRE FABRIC

FOUNDATION DRAWING ABBREVIATIONS

APPROX	APPROXIMATELY
B/	BOTTOM OF
C.I.	CAST IRON
CL	CENTERLINE
CONC.	CONCRETE
Δ	INTERSECTION ANGLE (DELTA)
DIA	DIAMETER
E	EASTING
E/W	EAST WEST
EL	ELEVATION
EXIST	EXISTING
FIN	FINISHED
FTG	FOOTING
H.P.	HIGH POINT
INV	INVERT
JOINT	JOINT
L	LENGTH
L.P.	LOW POINT
N	NORTHING
N/S	NORTH SOUTH
PED	PEDESTAL
PS	PIPE SUPPORT
R	RADIUS
R	RISER FOR STAIRS
S	SLOPE
S	CURVE DATA
SYM	SYMMETRICAL
T	TANGENT
T	TREAD FOR STAIRS
T/	TOP OF
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
WWF	WELDED WIRE FABRIC

UNDERGROUND UTILITY MATERIAL ABBREVIATIONS

A	PIPE SPECIFICATION DESIGNATION FOR STEEL FUEL, OIL AND SOLVENT LINES
CI	CAST IRON
CMP	CORRUGATED METAL PIPE
DI	DUCTILE IRON
HDPE	HIGH DENSITY POLYETHYLENE
LI	PIPE SPECIFICATION DESIGNATION FOR MISC. CAST IRON WATER LINES
NI	PIPE SPECIFICATION DESIGNATION FOR CLAY, CONCRETE OR METAL STORM SEWER PIPE
MI	PIPE SPECIFICATION DESIGNATION FOR VITRIFIED SANITARY SEWER PIPE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
S	PIPE SPECIFICATION DESIGNATION FOR STEEL STEAM/BOILER FEED LINES
VCP	VITRIFIED CLAY PIPE
V	PIPE SPECIFICATION DESIGNATION FOR STEEL FUEL GAS PIPE
W	PIPE SPECIFICATION DESIGNATION FOR STEEL AIR, WATER, AND STEAM LINES

SYMBOLS LEGEND

EXISTING	PROPOSED
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
N/A	SILT FENCE
N/A	STRAW BALE
N/A	LIMIT OF EXCAVATION OR WORK
N/A	PROTECTED AREA
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
N/A	HAUL ROAD
N/A	WALKWAY
	584
	585
	N/A
N/A	DEWATERING CHANNEL OR LINE
	SEE PLANS
	N/A

SYMBOLS LEGEND

EXISTING	PROPOSED
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A

UNITED STATES DEPARTMENT OF ENERGY FERNALD CLOSURE PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE

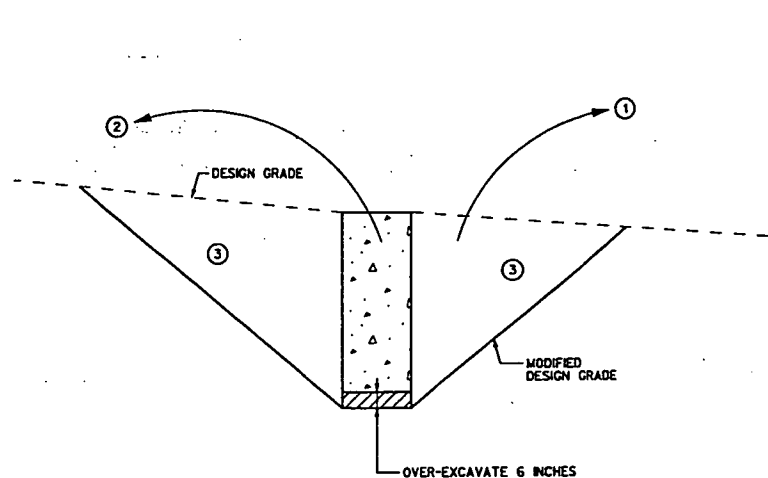
LEGEND AND GENERAL NOTES

000014

APPROVALS			
COGNIZANT ENG.	A. SHEP	SAFETY ENG.	S. JENSEN
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER	D. REZULL	WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	B. FROSE
CHECKED	C. REHMAN	CONSTRUCTION	E. HARRIS
APPROVED	C.E. PAUL	UTILITIES	A. MILLER
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.
KLH	2080	99X-5500-X-00639	X-3
REV. PROJECT NO.	99X-5500-X-00639		0

99XG00769 OSD-F3 lln8392 Thursday November 20 2003 01:24:27 PM EST

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F

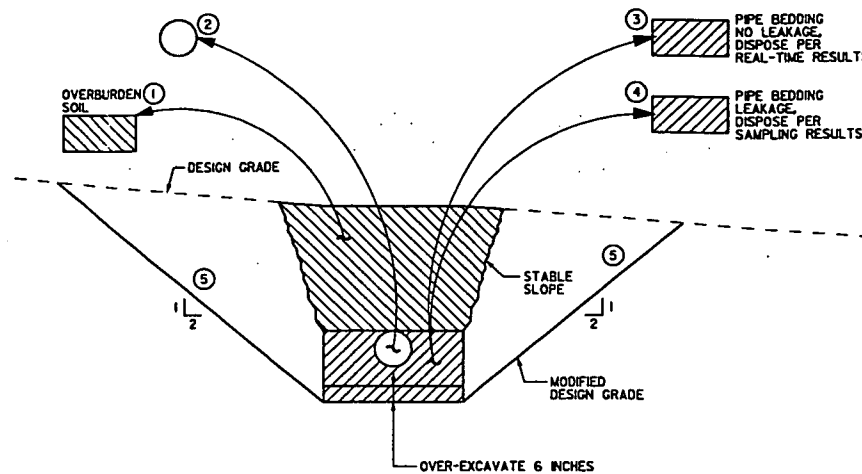


- 1 EXCAVATE SOIL FROM AROUND THE STRUCTURE (SEE NOTE D AND DISPOSE OF IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02205.
- 2 EXCAVATE THE STRUCTURE PLUS 6 INCHES OF SOIL BELOW THE STRUCTURE AND PERFORM A VISUAL INSPECTION. STRUCTURES FREE OF VISIBLE PROCESS RESIDUE SHALL BE DISPOSED OF IN ACCORDANCE WITH SPECIFICATION SECTION 02205. STRUCTURES THAT ARE DEFORMED, CLOSED OR OTHERWISE HINDER VISUAL INSPECTION, OR CANNOT BE CLEANED OF VISIBLE PROCESS RESIDUE, SHALL BE DISPOSITIONED AS ABOVE-WAC DEBRIS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
- 3 EXCAVATE 2H:1V SIDE SLOPES TO STABILIZE THE EXCAVATION AND TO PROVIDE A MODIFIED DESIGN GRADE. DISPOSE OF EXCAVATED MATERIAL IN ACCORDANCE WITH SPECIFICATION SECTION 02205.

NOTES:

- L THE TERM "STRUCTURE" IS USED AS A GENERIC REFERENCE TO PILES, PIERS, OR FOOTERS.

EXCAVATION OF STRUCTURES BELOW THE DESIGN GRADE
NTS



- 1 EXCAVATE OVERBURDEN SOIL FROM ABOVE THE PIPE (SEE NOTE D AND DISPOSE OF IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02205. SEE LATEST REVISION OF UNDERGROUND UTILITY GRID DRAWINGS FOR LOCATIONS AND ELEVATIONS OF UTILITIES.
- 2 EXCAVATE THE PIPE AND PERFORM A VISUAL INSPECTION OF THE PIPE. PIPE FREE OF VISIBLE PROCESS RESIDUE SHALL BE DISPOSED OF IN ACCORDANCE WITH SPECIFICATION SECTION 02205. DISPOSE OF PROCESS PIPE THAT IS DEFORMED, CLOSED OR OTHERWISE HINDERS VISUAL INSPECTION, OR CANNOT BE CLEANED OF VISIBLE PROCESS RESIDUE, AS ABOVE-WAC DEBRIS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
- 3 IF PIPE BEDDING SHOWS NO VISIBLE SIGNS OF PIPE LEAKAGE:
 1. PERFORM REAL-TIME MONITORING OF THE PIPE BEDDING IN THE TRENCH USING EMS OR ADJACENT TO THE TRENCH USING THE HPCE TR8-POD ON CIRCULAR SOIL PADS.
 2. EXCAVATE PIPE BEDDING, AND OVER-EXCAVATE 6 INCHES BELOW THE PIPE BEDDING.
 3. MANAGE MATERIAL BASED ON THE RESULTS OF REAL-TIME MONITORING, IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
- 4 IF PIPE BEDDING SHOWS VISIBLE SIGNS OF PIPE LEAKAGE:
 1. PERFORM PHYSICAL SAMPLING OF THE PIPE BEDDING.
 2. EXCAVATE PIPE BEDDING, AND OVER-EXCAVATE 6 INCHES BELOW THE PIPE BEDDING, OR AS NECESSARY TO REMOVE VISIBLE SIGNS OF PIPE LEAKAGE.
 3. MANAGE MATERIAL BASED ON SAMPLING RESULTS, IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02205.
- 5 EXCAVATE 2H:1V SIDE SLOPES TO STABILIZE EXCAVATED UTILITY TRENCHES AND TO PROVIDE A MODIFIED DESIGN GRADE. DISPOSE OF EXCAVATED MATERIAL IN ACCORDANCE WITH SPECIFICATION SECTION 02205.

NOTES:

- L THE TERM "PIPE" IS USED AS A GENERIC REFERENCE TO UNDERGROUND UTILITIES.

EXCAVATION OF UTILITIES BELOW THE DESIGN GRADE
NTS

GENERAL NOTES

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UNITED STATES
DEPARTMENT OF ENERGY
FERNALD CLOSURE PROJECT

THIS DRAWING PREPARED BY

FLUOR FERNALD, INC.



PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
000015

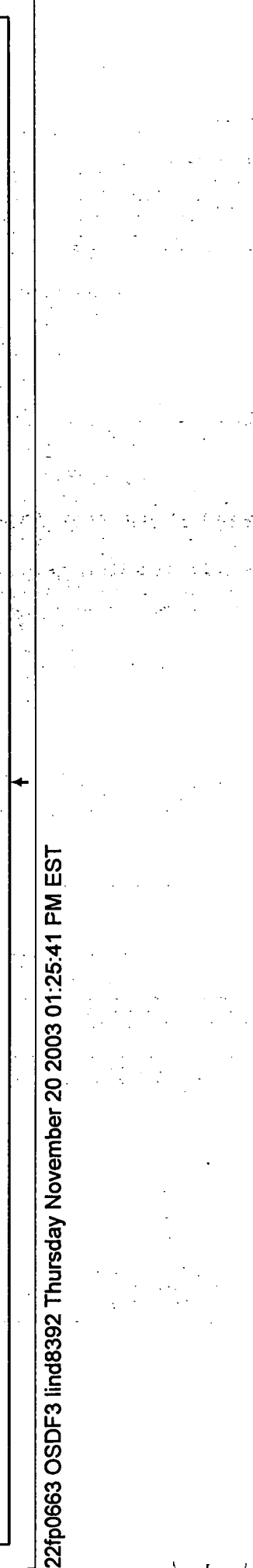
UTILITY AND STRUCTURE REMOVAL
BELOW DESIGN GRADE

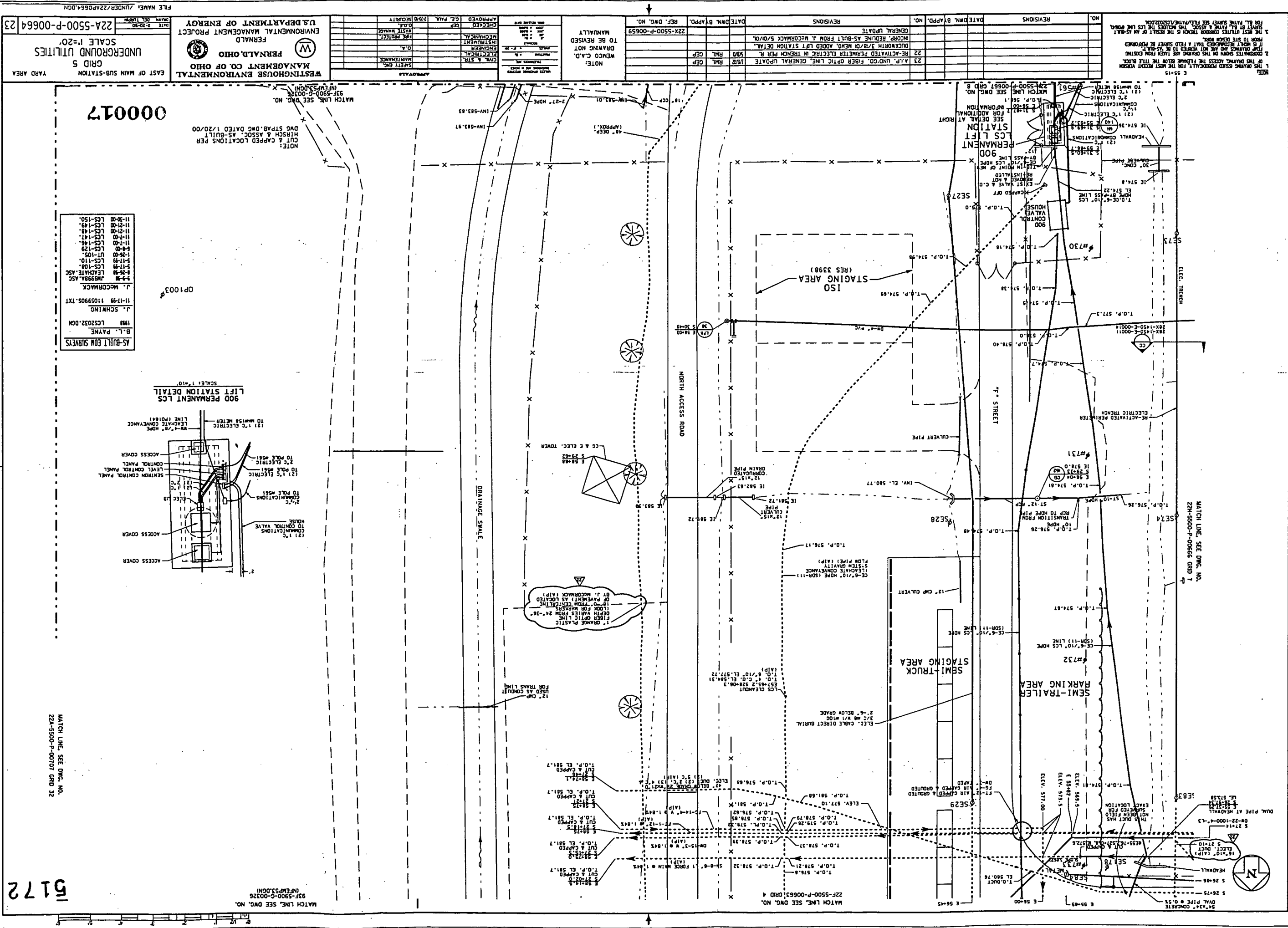
APPROVALS

COGNIZANT ENG.	A. SHEP	7/9/03	SAFETY ENG.	S. JENSEN	7/9/03
CIVIL & STR.			MAINTENANCE		
ELECTRICAL			FIRE PROTECT.		
ENGINEER	B. RAYSL	7/9/03	WASTE MANAGE		
INSTRUMENT			SECURITY		
MECHANICAL			QA	B. FROST	7/9/03
			CONSTRUCTION	C. DUNN	7/9/03

CHECKED	C. HENSON	7/9/03			
APPROVED	C.E. PAUL	7/9/03			

DRAWN BY KLR	PROJECT NO. 20040	DRAWING INDEX CODE NO. 99X-5500-G-00769	SHEET NO. D-3	REV. NO. 1
REV. PROJECT NO.	99XG00769.DGN			





APPENDIX B

DATA PACKAGE

TABLE B-1
ALL HISTORICAL DATA COLLECTED FROM A1PIV

Boring ID	Northing	Easting	Sample ID	Top	Bottom	Elevation	Date	Parameter	Result	Qual	Unit
I1686	480124.05	1350695.4	200158148				4/28/1995	Uranium, Total	0.1	UNV	ppm
A1P2-S2LL-01-03	479823.08	1350800	A1P2-S2LL-01-03B-RM	4.9	5.4	583.153	12/22/1999	Arsenic	6.53	J	mg/kg dry
A1P2-S2LL-01-03	479823.08	1350800	A1P2-S2LL-01-03B-RM	4.9	5.4	583.153	12/22/1999	Lead	20.4	J	mg/kg dry
A1P2-S2LL-01-03	479823.08	1350800	A1P2-S2LL-01-03B-RM	4.9	5.4	583.153	12/22/1999	Moisture Content	17	NV	PERCENT
A1P2-S2LL-01-03	479823.08	1350800	A1P2-S2LL-01-03W	4.4	4.9	583.153	12/22/1999	Moisture Content	16.9	NV	PERCENT
A1P2-S2LL-01-03	479823.08	1350800	A1P2-S2LL-01-03B-RM	4.9	5.4	583.153	12/22/1999	Radium-226	1.173	-	pCi/g dry
A1P2-S2LL-01-03	479823.08	1350800	A1P2-S2LL-01-03B-RM	4.9	5.4	583.153	12/22/1999	Radium-228	0.877	-	pCi/g dry
A1P2-S2LL-01-03	479823.08	1350800	A1P2-S2LL-01-03B-RM	4.9	5.4	583.153	12/22/1999	Thorium-228	0.877	-	pCi/g dry
A1P2-S2LL-01-03	479823.08	1350800	A1P2-S2LL-01-03B-RM	4.9	5.4	583.153	12/22/1999	Thorium-232	0.877	-	pCi/g dry
A1P2-S2LL-01-03	479823.08	1350800	A1P2-S2LL-01-03B-RM	4.9	5.4	583.153	12/22/1999	Uranium, Total	2.292	U	ug/g dry
A1P2-S2LL-01-03	479823.08	1350800	A1P2-S2LL-01-03W	4.4	4.9	583.153	12/22/1999	Uranium, Total	2.7	NV	ug/g dry
A1P2-S2LL-01-04	480019.1	1350801.16	A1P2-S2LL-01-04B-RM	9.92	10.33	583.776	12/22/1999	Arsenic	2.51	U	mg/kg dry
A1P2-S2LL-01-04	480019.1	1350801.16	A1P2-S2LL-01-04B-RM	9.92	10.33	583.776	12/22/1999	Lead	12.3	J	mg/kg dry
A1P2-S2LL-01-04	480019.1	1350801.16	A1P2-S2LL-01-04B-RM	9.92	10.33	583.776	12/22/1999	Moisture Content	13.1	NV	PERCENT
A1P2-S2LL-01-04	480019.1	1350801.16	A1P2-S2LL-01-04W	9.42	9.92	583.776	12/22/1999	Moisture Content	13.4	NV	PERCENT
A1P2-S2LL-01-04	480019.1	1350801.16	A1P2-S2LL-01-04B-RM	9.92	10.33	583.776	12/22/1999	Radium-226	0.902	-	pCi/g dry
A1P2-S2LL-01-04	480019.1	1350801.16	A1P2-S2LL-01-04B-RM	9.92	10.33	583.776	12/22/1999	Radium-228	0.713	-	pCi/g dry
A1P2-S2LL-01-04	480019.1	1350801.16	A1P2-S2LL-01-04B-RM	9.92	10.33	583.776	12/22/1999	Thorium-228	0.713	-	pCi/g dry
A1P2-S2LL-01-04	480019.1	1350801.16	A1P2-S2LL-01-04B-RM	9.92	10.33	583.776	12/22/1999	Thorium-232	0.713	-	pCi/g dry
A1P2-S2LL-01-04	480019.1	1350801.16	A1P2-S2LL-01-04B-RM	9.92	10.33	583.776	12/22/1999	Uranium, Total	2.491	U	ug/g dry
A1P2-S2LL-01-04	480019.1	1350801.16	A1P2-S2LL-01-04W	9.42	9.92	583.776	12/22/1999	Uranium, Total	0.851	NV	ug/g dry
ASA-77	480209.7	1350705.06	ASA-77-1-RMP	0	0.5	580.542	7/20/2002	Aroclor-1254	14.2	UNV	ug/kg
ASA-77	480209.7	1350705.06	ASA-77-1-RMP	0	0.5	580.542	7/20/2002	Aroclor-1260	14.2	UNV	ug/kg
ASA-77	480209.7	1350705.06	ASA-77-1-RMP	0	0.5	580.542	7/20/2002	Arsenic	7.39	NV	mg/kg
ASA-77	480209.7	1350705.06	ASA-77-1-RMP	0	0.5	580.542	7/20/2002	Beryllium	0.732	NV	mg/kg
ASA-77	480209.7	1350705.06	ASA-77-1-AB	0	0.5	580.542	7/20/2002	Gross Alpha	11	UNV	pCi/g
ASA-77	480209.7	1350705.06	ASA-77-1-AB	0	0.5	580.542	7/20/2002	Gross Beta	19	UNV	pCi/g
ASA-77	480209.7	1350705.06	ASA-77-1-RMP	0	0.5	580.542	7/20/2002	Radium-226	1.04	NV	pCi/g
ASA-77	480209.7	1350705.06	ASA-77-1-RMP	0	0.5	580.542	7/20/2002	Radium-228	1.19	NV	pCi/g
ASA-77	480209.7	1350705.06	ASA-77-1-RMP	0	0.5	580.542	7/20/2002	Thorium-228	1.14	NV	pCi/g
ASA-77	480209.7	1350705.06	ASA-77-1-RMP	0	0.5	580.542	7/20/2002	Thorium-232	1.19	NV	pCi/g
ASA-77	480209.7	1350705.06	ASA-77-1-RMP	0	0.5	580.542	7/20/2002	Uranium, Total	9.94	NV	ug/g
ASA-78	480152.6	1350849.69	ASA-78-1-R	0	0.5	583.343	7/20/2002	Radium-226	0.85	NV	pCi/g
ASA-78	480152.6	1350849.69	ASA-78-1-R	0	0.5	583.343	7/20/2002	Radium-228	0.891	NV	pCi/g
ASA-78	480152.6	1350849.69	ASA-78-1-R	0	0.5	583.343	7/20/2002	Thorium-228	0.901	NV	pCi/g
ASA-78	480152.6	1350849.69	ASA-78-1-R	0	0.5	583.343	7/20/2002	Thorium-232	0.891	NV	pCi/g
ASA-78	480152.6	1350849.69	ASA-78-1-R	0	0.5	583.343	7/20/2002	Uranium, Total	18.2	NV	ug/g
ASA-79	480066.16	1350705.18	ASA-79-3-R	1	1.5	582.873	7/21/2002	Radium-226	0.887	NV	pCi/g
ASA-79	480066.16	1350705.18	ASA-79-3-R	1	1.5	582.873	7/21/2002	Radium-228	1.08	NV	pCi/g
ASA-79	480066.16	1350705.18	ASA-79-3-R	1	1.5	582.873	7/21/2002	Thorium-228	1.07	NV	pCi/g
ASA-79	480066.16	1350705.18	ASA-79-3-R	1	1.5	582.873	7/21/2002	Thorium-232	1.08	NV	pCi/g
ASA-79	480066.16	1350705.18	ASA-79-3-R	1	1.5	582.873	7/21/2002	Uranium, Total	39.4	NV	ug/g
ASA-80	480097.47	1350817.29	ASA-80-1-R	0	0.5	583.484	7/20/2002	Radium-226	0.794	NV	pCi/g
ASA-80	480097.47	1350817.29	ASA-80-1-R	0	0.5	583.484	7/20/2002	Radium-228	0.622	NV	pCi/g
ASA-80	480097.47	1350817.29	ASA-80-1-R	0	0.5	583.484	7/20/2002	Thorium-228	0.613	NV	pCi/g

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TABLE B-1
ALL HISTORICAL DATA COLLECTED FROM AIPV

Boring ID	Northing	Easting	Sample ID	Top	Bottom	Elevation	Date	Parameter	Result	Qual	Unit
A5A-80	480097.47	1350817.29	A5A-80-1-R	0	0.5	583.484	7/20/2002	Thorium-232	0.622	NV	pCi/g
A5A-80	480097.47	1350817.29	A5A-80-1-R	0	0.5	583.484	7/20/2002	Uranium, Total	6.99	NV	ug/g
A5A-81	479931.11	1350683.16	A5A-81-2-RMP	0.5	1	582.319	7/31/2002	Aroclor-1254	14.4	UNV	ug/kg
A5A-81	479931.11	1350683.16	A5A-81-2-RMP	0.5	1	582.319	7/31/2002	Aroclor-1260	3.1	NV	ug/kg
A5A-81	479931.11	1350683.16	A5A-81-2-RMP	0.5	1	582.319	7/31/2002	Arsenic	6.55	NV	mg/kg
A5A-81	479931.11	1350683.16	A5A-81-2-RMP	0.5	1	582.319	7/31/2002	Beryllium	0.749	NV	mg/kg
A5A-81	479931.11	1350683.16	A5A-81-2-RMP	0.5	1	582.319	7/31/2002	Radium-226	1.25	NV	pCi/g
A5A-81	479931.11	1350683.16	A5A-81-2-RMP	0.5	1	582.319	7/31/2002	Radium-228	1.03	NV	pCi/g
A5A-81	479931.11	1350683.16	A5A-81-2-RMP	0.5	1	582.319	7/31/2002	Thorium-228	1.04	NV	pCi/g
A5A-81	479931.11	1350683.16	A5A-81-2-RMP	0.5	1	582.319	7/31/2002	Thorium-232	1.03	NV	pCi/g
A5A-82	479947.61	1350791.27	A5A-82-2-R	0.5	1	584.522	8/5/2002	Uranium, Total	26.1	NV	ug/g
A5A-82	479947.61	1350791.27	A5A-82-2-R	0.5	1	584.522	8/5/2002	Radium-226	0.993	NV	pCi/g
A5A-82	479947.61	1350791.27	A5A-82-2-R	0.5	1	584.522	8/5/2002	Radium-228	0.82	NV	pCi/g
A5A-82	479947.61	1350791.27	A5A-82-2-R	0.5	1	584.522	8/5/2002	Thorium-228	0.83	NV	pCi/g
A5A-82	479947.61	1350791.27	A5A-82-2-R	0.5	1	584.522	8/5/2002	Thorium-232	0.82	NV	pCi/g
A5A-83	479805.48	1350744.35	A5A-83-1-R	0	0.5	582.891	7/20/2002	Uranium, Total	8.54	NV	ug/g
A5A-83	479805.48	1350744.35	A5A-83-1-R	0	0.5	582.891	7/20/2002	Radium-226	0.837	NV	pCi/g
A5A-83	479805.48	1350744.35	A5A-83-1-R	0	0.5	582.891	7/20/2002	Radium-228	0.963	NV	pCi/g
A5A-83	479805.48	1350744.35	A5A-83-1-R	0	0.5	582.891	7/20/2002	Thorium-228	0.966	NV	pCi/g
A5A-83	479805.48	1350744.35	A5A-83-1-R	0	0.5	582.891	7/20/2002	Thorium-232	0.963	NV	pCi/g
A5A-84	479780.62	1350844.64	A5A-84-1-R	0	0.5	583.432	7/20/2002	Uranium, Total	24.2	NV	ug/g
A5A-84	479780.62	1350844.64	A5A-84-1-R	0	0.5	583.432	7/20/2002	Radium-226	0.792	NV	pCi/g
A5A-84	479780.62	1350844.64	A5A-84-1-R	0	0.5	583.432	7/20/2002	Radium-228	0.587	NV	pCi/g
A5A-84	479780.62	1350844.64	A5A-84-1-R	0	0.5	583.432	7/20/2002	Thorium-228	0.597	NV	pCi/g
A5A-84	479780.62	1350844.64	A5A-84-1-R	0	0.5	583.432	7/20/2002	Thorium-232	0.587	NV	pCi/g
A5A-85	479716.95	1350674.38	A5A-85-3-RMP	1	1.5	581.856	7/31/2002	Uranium, Total	11.9	NV	ug/g
A5A-85	479716.95	1350674.38	A5A-85-3-RMP	1	1.5	581.856	7/31/2002	Aroclor-1254	15.5	UNV	ug/kg
A5A-85	479716.95	1350674.38	A5A-85-3-RMP	1	1.5	581.856	7/31/2002	Aroclor-1260	1.4	NV	ug/kg
A5A-85	479716.95	1350674.38	A5A-85-3-RMP	1	1.5	581.856	7/31/2002	Arsenic	5.98	NV	mg/kg
A5A-85	479716.95	1350674.38	A5A-85-3-RMP	1	1.5	581.856	7/31/2002	Beryllium	0.566	NV	mg/kg
A5A-85	479716.95	1350674.38	A5A-85-3-RMP	1	1.5	581.856	7/31/2002	Radium-226	1.02	NV	pCi/g
A5A-85	479716.95	1350674.38	A5A-85-3-RMP	1	1.5	581.856	7/31/2002	Radium-228	0.996	NV	pCi/g
A5A-85	479716.95	1350674.38	A5A-85-3-RMP	1	1.5	581.856	7/31/2002	Thorium-228	1.01	NV	pCi/g
A5A-85	479716.95	1350674.38	A5A-85-3-RMP	1	1.5	581.856	7/31/2002	Thorium-232	0.996	NV	pCi/g
A5A-86	479644.82	1350844.46	A5A-86-1-AB	0	0.5	583.245	7/20/2002	Uranium, Total	12.1	NV	ug/g
A5A-86	479644.82	1350844.46	A5A-86-1-AB	0	0.5	583.245	7/20/2002	Gross Alpha	10	UNV	pCi/g
A5A-86	479644.82	1350844.46	A5A-86-1-R	0	0.5	583.245	7/20/2002	Gross Beta	18	UNV	pCi/g
A5A-86	479644.82	1350844.46	A5A-86-1-R	0	0.5	583.245	7/20/2002	Radium-226	0.772	NV	pCi/g
A5A-86	479644.82	1350844.46	A5A-86-1-R	0	0.5	583.245	7/20/2002	Radium-228	0.866	NV	pCi/g
A5A-86	479644.82	1350844.46	A5A-86-1-R	0	0.5	583.245	7/20/2002	Thorium-228	0.871	NV	pCi/g
A5A-86	479644.82	1350844.46	A5A-86-1-R	0	0.5	583.245	7/20/2002	Thorium-232	0.866	NV	pCi/g
A5A-87	479552.36	1350680.48	A5A-87-1-R	0	0.5	581.446	7/20/2002	Uranium, Total	11.9	NV	ug/g
A5A-87	479552.36	1350680.48	A5A-87-1-R	0	0.5	581.446	7/20/2002	Radium-226	1.01	NV	pCi/g
A5A-87	479552.36	1350680.48	A5A-87-1-R	0	0.5	581.446	7/20/2002	Radium-228	0.883	NV	pCi/g
A5A-87	479552.36	1350680.48	A5A-87-1-R	0	0.5	581.446	7/20/2002	Thorium-228	0.884	NV	pCi/g

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TABLE B-1
ALL HISTORICAL DATA COLLECTED FROM A1PIV

Boring ID	Northing	Easting	Sample ID	Top	Bottom	Elevation	Date	Parameter	Result	Qual	Unit
A5A-87	479552.36	1350680.48	A5A-87-1-R	0	0.5	581.446	7/20/2002	Thorium-232	0.883	NV	pCi/g
A5A-87	479552.36	1350680.48	A5A-87-1-R	0	0.5	581.446	7/20/2002	Uranium, Total	8.13	NV	ug/g
A5A-88	479523.97	1350796.13	A5A-88-1-R	0	0.5	582.268	7/20/2002	Radium-226	1.09	NV	pCi/g
A5A-88	479523.97	1350796.13	A5A-88-1-R	0	0.5	582.268	7/20/2002	Radium-228	1.01	NV	pCi/g
A5A-88	479523.97	1350796.13	A5A-88-1-R	0	0.5	582.268	7/20/2002	Thorium-228	1.03	NV	pCi/g
A5A-88	479523.97	1350796.13	A5A-88-1-R	0	0.5	582.268	7/20/2002	Thorium-232	1.01	NV	pCi/g
A5A-88	479523.97	1350796.13	A5A-88-1-R	0	0.5	582.268	7/20/2002	Uranium, Total	11.1	NV	ug/g
A5A-89	479457.91	1350682.57	A5A-89-1-RMP	0	0.5	579.968	7/18/2002	Aroclor-1254	8.6	NV	ug/kg
A5A-89	479457.91	1350682.57	A5A-89-1-RMP	0	0.5	579.968	7/18/2002	Aroclor-1260	9.1	NV	ug/kg
A5A-89	479457.91	1350682.57	A5A-89-1-RMP	0	0.5	579.968	7/18/2002	Arsenic	6.86	NV	mg/kg
A5A-89	479457.91	1350682.57	A5A-89-1-RMP	0	0.5	579.968	7/18/2002	Beryllium	0.693	NV	mg/kg
A5A-89	479457.91	1350682.57	A5A-89-1-RMP	0	0.5	579.968	7/18/2002	Radium-226	1.02	NV	pCi/g
A5A-89	479457.91	1350682.57	A5A-89-1-RMP	0	0.5	579.968	7/18/2002	Radium-228	0.961	NV	pCi/g
A5A-89	479457.91	1350682.57	A5A-89-1-RMP	0	0.5	579.968	7/18/2002	Thorium-228	0.957	NV	pCi/g
A5A-89	479457.91	1350682.57	A5A-89-1-RMP	0	0.5	579.968	7/18/2002	Thorium-232	0.961	NV	pCi/g
A5A-89	479457.91	1350682.57	A5A-89-1-RMP	0	0.5	579.968	7/18/2002	Uranium, Total	13.5	NV	ug/g
A5A-90	479466.46	1350830.36	A5A-90-1-R	0	0.5	582.796	7/19/2002	Radium-226	0.489	NV	pCi/g
A5A-90	479466.46	1350830.36	A5A-90-1-R	0	0.5	582.796	7/19/2002	Radium-228	0.477	NV	pCi/g
A5A-90	479466.46	1350830.36	A5A-90-1-R	0	0.5	582.796	7/19/2002	Thorium-228	0.441	NV	pCi/g
A5A-90	479466.46	1350830.36	A5A-90-1-R	0	0.5	582.796	7/19/2002	Thorium-232	0.477	NV	pCi/g
A5A-90	479466.46	1350830.36	A5A-90-1-R	0	0.5	582.796	7/19/2002	Uranium, Total	3.79	NV	ug/g
A5A-91	479363.6	1350776.96	A5A-91-1-R	0	0.5	582.231	7/17/2002	Radium-226	0.875	NV	pCi/g
A5A-91	479363.6	1350776.96	A5A-91-1-R	0	0.5	582.231	7/17/2002	Radium-228	0.995	NV	pCi/g
A5A-91	479363.6	1350776.96	A5A-91-1-R	0	0.5	582.231	7/17/2002	Thorium-228	1.01	NV	pCi/g
A5A-91	479363.6	1350776.96	A5A-91-1-R	0	0.5	582.231	7/17/2002	Thorium-232	0.995	NV	pCi/g
A5A-91	479363.6	1350776.96	A5A-91-1-R	0	0.5	582.231	7/17/2002	Uranium, Total	9.99	NV	ug/g
A5A-92	479303.38	1350700.76	A5A-92-1-R	0	0.5	582.027	7/15/2002	Radium-226	1	NV	pCi/g
A5A-92	479303.38	1350700.76	A5A-92-1-R	0	0.5	582.027	7/15/2002	Radium-228	1.03	NV	pCi/g
A5A-92	479303.38	1350700.76	A5A-92-1-R	0	0.5	582.027	7/15/2002	Thorium-228	1.05	NV	pCi/g
A5A-92	479303.38	1350700.76	A5A-92-1-R	0	0.5	582.027	7/15/2002	Thorium-232	1.03	NV	pCi/g
A5A-92	479303.38	1350700.76	A5A-92-1-R	0	0.5	582.027	7/15/2002	Uranium, Total	4.51	NV	ug/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Cesium-137	0.5	J	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Neptunium-237	0.6	U	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Plutonium-238	0.6	U	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Plutonium-239/240	0.6	U	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Radium-226	1.1	J	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Radium-228	1.1	J	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Ruthenium-106	1	UJ	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Sroutium-90	1.7	J	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Technetium-99	1	UJ	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Thorium-228	1	-	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Thorium-230	2.1	-	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Thorium-232	0.9	-	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Uranium, Total	24.3	-	mg/kg
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Uranium-234	7.7	-	pCi/g

TABLE B-1
ALL HISTORICAL DATA COLLECTED FROM A1PIV

Boring ID	Northing	Easting	Sample ID	Top	Bottom	Elevation	Date	Parameter	Result	Qual	Unit
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Uranium-235/236	0.6	U	pCi/g
ZONE 2-116	479779.403	1350780.99	005585	0	0.5		10/4/1988	Uranium-238	8.1	-	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Cesium-137	0.6	J	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Neptunium-237	0.6	U	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Plutonium-238	0.6	U	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Plutonium-239/240	0.6	U	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Radium-226	0.9	J	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Radium-228	1	J	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Ruthenium-106	1	UJ	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Strontium-90	0.6	J	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Technetium-99	1	UJ	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Uranium, Total	45.4	-	mg/kg
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Uranium-234	14.4	-	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Uranium-235/236	0.9	-	pCi/g
ZONE 2-147	480029.406	1350780.987	005588	0	0.5		10/4/1988	Uranium-238	15.1	-	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Cesium-137	0.5	J	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Neptunium-237	0.6	U	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Plutonium-238	0.6	U	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Plutonium-239/240	0.6	U	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Radium-226	0.8	J	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Radium-228	0.7	J	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Ruthenium-106	1	UJ	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Strontium-90	0.5	UJ	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Technetium-99	1	UJ	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Thorium-228	0.8	-	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Thorium-230	1.9	-	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Thorium-232	0.9	-	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Uranium, Total	30.0	-	mg/kg
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Uranium-234	9.1	-	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Uranium-235/236	0.6	U	pCi/g
ZONE 2-90	479529.401	1350780.993	005582	0	0.5		10/4/1988	Uranium-238	10	-	pCi/g

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